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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/797,784

Applicant(s)

SETLUR ET AL.

Examiner

Johannes P. Mondt

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 and 37-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-34, 37 and 39 is/are allowed.
- 6) ☒ Claim(s) 1-26, 38, 40-43, 45 and 46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

Amendment filed 6/6/07 forms the basis for this action. Ins aid Amendment applicant substantially amended all pending claims 1-34 and 37-46.

Comments on "Remarks" are included below under "Response to Arguments".

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. ***Claims 1-13 and 45*** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, the removal altogether of  $\text{Mg}_4\text{FgeO}_6\text{:Mn}^{4+}$  constitutes a broadening of a range not supported by the original specification including original claims, and hence constitutes new matter.
2. ***Claims 14-26*** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically,

Art Unit: 3663

the removal of the specific chemical composition limitation for the magnesium fluorogermanate in the independent claim 14 constitutes a broadening not supported by the original specification including original claims, and hence constitutes new matter.

3. **Claim 38** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In particular, the removal altogether of  $\text{Mg}_4\text{FGeO}_6\text{:Mn}^{4+}$  constitutes a broadening of a range not supported by the original specification including original claims, and hence constitutes new matter.
4. **Claims 40-43** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, the removal of  $\text{Mg}_4\text{FGeO}_6\text{:Mn}^{4+}$  and the removal of "one or more garnet phosphors" having the general formula as previously recited (final line of independent claim 40) substantially broadens the blend to one undisclosed in the original specification including original claims, and hence constitutes new matter.

Art Unit: 3663

5. **Claim 46** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, the removal of the "one or more garnet phosphors" with composition as claimed (lines 6-8 in the previous claim 46) substantially broadens the phosphor composition in the lightning apparatus to one not supported by the original specification including original claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-7, 12, 13 and 45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al (as cited previously) and Ohara et al (6,168,892 B1).

*On claim 1: Srivastava et al teach a semiconductor light source 11 or 1; see Figures 2-5 and 7) having a peak emission in a range from 370 nm – 390 nm (because this range is completely within the UV range; see "1. The Radiation Source", pages 10-11, especially line 7 of page 11).*

*Srivastava et al* also teach the conversion of the primary light into a mixture of red, blue and green light (see abstract).

*Srivastava et al do not necessarily teach* the limitation on specific phosphor composition as claimed. *However, it would have been obvious to include said limitation in view of Ohara et al*, who, in a patent on forming color images and color mixing, teach the inclusion of  $\text{Y}_3\text{Al}_5\text{O}_{12}$  (col. 6, line 9),  $\text{Ba}_2\text{SiO}_4:\text{Eu}^{2+}$  (col. 6, line 50) and a phosphor comprising the phosphor  $\text{Sr}_2\text{P}_2\text{O}_7:\text{Eu}^{2+}$ , while teaching that activators / co- activators may be selected from any of the group comprising Eu, Mn, Ce, inter alia (col. 6, l. 6-7). Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. In re Leshin 125 USPQ 416.

*On claim 2:* the light source is an LED (page 11, first paragraph).

*On claim 3:* the LED active region may comprise a p-n junction comprising GaN, AlGaN and InGaN semiconductor layers (page 11, first paragraph), hence said p-n junction can be characterized as an  $\text{In}_i\text{Ga}_j\text{Al}_k\text{N}$  layer with  $0 \leq i, 0 \leq j; 0 \leq k, i+j+k=1$ .

*On claim 4:* the lighting apparatus by *Srivastava* is also disclosed as an organic emissive structure, in particular: OLED (page 11, second paragraph).

*On claim 5:* the phosphor composition is coated on the surface of the light source (coating 46; see page 24 and Figure 7).

*On claim 6:* the lighting apparatus further comprises an encapsulant 19 surrounding the light source 11 and the phosphor composition 21 (pages 22-23 and Figure 4).

*On claim 7:* the phosphor is dispersed in the encapsulant (Figure 4 and loc.cit.).

*On claim 12:* said phosphor composition further comprises one or more additional phosphor(s) (see "2. First Phosphor", pages 11-12; "4. Third Phosphor", pages 15-18; and " 5. Optional Fourth Phosphor", pages 18-19).

*On claim 13:* said one or more additional phosphors are selected from the claimed group, for instance  $(\text{Ba}, \text{Sr}, \text{Ca})\text{MgP}_2\text{O}_7:\text{Eu}^{2+}, \text{Mn}^{2+}$ . See page 12, lines 5-9).

*On claim 45:* said semiconductor light source has a peak emission at about 405 nm (namely: in the ranger 370 nm – 390 nm).

2. **Claims 14-16, 18-21, 25 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bokor et al in view of Schaepkens et al (US 2004/0051444 A1).

*Bokor et al teach* a light-emitting apparatus capable of emitting white light comprising:

a UV light source emitting radiation having a peak emission in the UV range and a phosphor composition radiatively coupled to the light source, the phosphor composition comprising  $(\text{Sr}, \text{Ba}, \text{Ca})_2\text{SiO}_4:\text{Eu}$  (line 7 of page 6) and a magnesium fluorogermanate (page 9, line 13).

*Bokor et al do not necessarily teach* the phosphor composition to also comprise one or more garnet phosphors as claimed.

Art Unit: 3663

*However, it would have been obvious* to include said one or more garnet phosphors and magnesium fluorogermanate as claimed in view of Schaepkens et al, who, in a patent application on lighting apparatus (see title and abstract) including color conversion of primary light from light emitting apparatus (see [0037]-[0044]), hence analogous art, teach the inclusion of a garnet phosphor having the general formula as claimed (see [0037]) for the specific purpose of absorption of the primary radiation including UV radiation at 390 nm (hence in the range around the peak wavelength of the light source of Bokor et al) and subsequent emission in the green-to-red portion of the spectrum including in one application the production of white light ([0030]). *Motivation* to include the garnet phosphor immediately derives from the suitability of said phosphor for conversion of UV light to produce components in the similar spectrum supplementing the mainly blue-green component emitted by the  $(\text{Sr,Ba,Ca})_2\text{SiO}_4\text{:Eu}$  phosphor so as to approach white light, which is the common goal of the primary references (see Bokor et al, [0001]-[0002]).

*On claim 15:* the lighting apparatus is an LED (title).

*On claim 16:* the LED comprises a nitride compound semiconductor represented by the formula  $\text{In}_i\text{Ga}_j\text{Al}_k\text{N}$ ,  $0 \leq k$ , and  $i+j=k$ . See [0013]).

*On claim 18:* the phosphor composition is coated on the surface of the light source (the coating being 5 comprising 6 ([0027])).

*On claim 19:* the lighting apparatus further comprises an encapsulant 5 ([0027]) surrounding the light source 1 and the phosphor composition 6.



*On claim 20:* the phosphor composition is dispersed in the encapsulant (Figure 1 and [0027]).

*On claim 21:* the lighting apparatus further comprises a reflector cup (see Figure 1, and reflecting walls 17 ([0027]).

*On claim 25:* said phosphor composition further comprises necessarily at least one additional phosphor because inclusion of  $(\text{Sr}, \text{Ba})\text{SiO}_4:\text{Eu}^{2+}$  needs to be combined with at least one phosphor in the blue portion of the emission spectrum ([0028] and [0032]).

*On claim 26:* said one or more additional phosphors are selected from the blue-emitting phosphors 2, 4 and 6 in Table 4, inter alia:  $(\text{Ba}, \text{Sr}, \text{Ca})_5(\text{PO}_4)_3(\text{Cl}, \text{F}, \text{Br}, \text{OH}):\text{Eu}^{2+}$  (No. 2 in Table 4, for zero content of Ca and the selection of Cl), and  $(\text{Ba}, \text{Sr}, \text{Ca})\text{MgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}, \text{Mn}^{2+}$  (for zero content of Ca and Mn).

3. **Claims 14-20, 25-26, 40 and 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al (WO 01/89001 A2) (cited previously) in view of Schaepekens et al (US 2004/0051444 A1) (cited previously) and either Lowden et al (cited in previous action) or Wyner et al (EP 0 087 745 A1) (cited previously).

*On claims 14 and 40:* As detailed above, Srivastava et al teach a semiconductor light source 11 or 1; see Figures 2-5 and 7) having a peak emission in a range from 370 nm – 390 nm (because this range is completely within the UV range; see “1. The Radiation Source”, pages 10-11, especially line 7 of page 11), and

Art Unit: 3663

a phosphor composition radiatively coupled to the light source (see pages 11-20), the phosphor composition comprising  $(\text{Ba,Sr,Ca})_2\text{SiO}_4\text{:Eu}$  (see "3. Second Phosphor", pages 13-15, especially 13, lines 20-26) and a magnesium fluorogermanate (page 18+, section 5, especially lines 23-25 on page 18).

*Srivastava et al do not necessarily teach* the phosphor composition to also comprise one or more garnet phosphors.

*However, it would have been obvious* to include said one or more garnet phosphors as claimed in view of Schaepkens et al, who, in a patent application on lighting apparatus (see title and abstract) including color conversion of primary light from light emitting apparatus (see [0037]-[0044]), hence analogous art, teach the inclusion of a garnet phosphor having the general formula as claimed (see [0037]) for the specific purpose of absorption of the primary radiation including UV radiation at 390 nm (hence in the range around the peak wavelength of the light source of Srivastava et al) and subsequent emission in the green-to-red portion of the spectrum for the purpose of absorption of the primary radiation in a range comprising the peak wavelength of Srivastava et al. *Motivation* to include the garnet and magnesium fluorogermanate phosphor immediately derives from the suitability of said phosphor for conversion of UV light to produce components in the spectrum supplementing the mainly blue-green component emitted by the  $(\text{Sr,Ba,Ca})_2\text{SiO}_4\text{:Eu}$  phosphor so as to approach white light, which is the common goal of the primary references (see Srivastava et al, "Background of the Invention", page 1).

Finally, the phosphor blend as recited by claim 40 is herewith also made obvious, because the combined invention implies the phosphor blend including  $(\text{Ba}, \text{Sr}, \text{Ca})_2 \text{SiO}_4:\text{Eu}$ , a magnesium fluorogermanate and both the garnet phosphor having the general formula as claimed and the magnesium fluorogermanate having the claimed formula.

*On claim 15:* the light source is a semiconductor LED (page 11, first paragraph).

*On claim 16:* the LED active region may comprise a p-n junction comprising GaN, AlGaN and InGaN semiconductor layers (page 11, first paragraph), hence said p-n junction can be characterized as an  $\text{In}_i\text{Ga}_j\text{Al}_k\text{N}$  layer with  $0 \leq i, 0 \leq j, 0 \leq k, i+j+k=1$ .

*On claim 17:* the lighting apparatus by Srivastava is also disclosed as an organic emissive structure, in particular: OLED (page 11, second paragraph).

*On claim 18:* the phosphor composition is coated on the surface of the light source (coating 46; see page 24 and Figure 7).

*On claim 19:* the lighting apparatus further comprises an encapsulant 19 surrounding the light source 11 and the phosphor composition 21 (pages 22-23 and Figure 4).

*On claim 20:* the phosphor is dispersed in the encapsulant (Figure 4 and loc.cit.).

*On claim 25:* said phosphor composition further comprises one or more additional phosphor(s) (see "2. First Phosphor", pages 11-12; "4. Third Phosphor", pages 15-18; and "5. Optional Fourth Phosphor", pages 18-19).

*On claim 26:* said one or more additional phosphors are selected from the claimed group, for instance  $(\text{Ba}, \text{Sr}, \text{Ca})\text{MgP}_2\text{O}_7:\text{Eu}^{2+}, \text{Mn}^{2+}$ . See page 12, lines 5-9).

*On claim 43:* Srivastava's invention is using said phosphor blend to absorb radiation emitted by a light source with a peak emission in the UV range and emitting radiation that, when combined with said radiation from said light source produces white light (see "1. Radiation Source", page 10 final lines on primary source spectrum and "Background of the Invention", pages 1-4 on the overall production of white light).

4. **Claim 46** is rejected under 35 U.S.C. 103(a) as being unpatentable over *Srivastava et al* (WO 01/89001 A2) (previously cited and made of record) in view of Ohara et al (6,168,892 B1).

*Srivastava et al* teach a semiconductor light source 11 or 1; see Figures 2-5 and 7) having a peak emission in a range from 370 nm – 390 nm (because this range is completely within the UV range; see "1. The Radiation Source", pages 10-11, especially line 7 of page 11).

*Srivastava et al* also teach the conversion of the primary light into a mixture of red, blue and green light (see abstract).

*Srivastava et al* do not necessarily teach the limitation on specific phosphor composition as claimed. However, it would have been obvious to include said limitation in view of Ohara et al, who, in a patent on forming color images and color mixing, teach the inclusion of  $\text{Ba}_2\text{SiO}_4:\text{Eu}^{2+}$  (col. 6, line 50) and a phosphor comprising the phosphor  $\text{Sr}_2\text{P}_2\text{O}_7:\text{Eu}^{2+}$ , while teaching that activators / co- activators may be selected from any of the group comprising Eu, Mn, Ce, inter alia (col. 6, l. 6-7). Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being

on the basis of suitability for the intended use, would be entirely obvious. In re Leshin 125 USPQ 416.

### ***Response to Arguments***

Applicant's arguments filed 6/6/07 have been fully considered but they are not persuasive.

On A: the claims do not satisfy 112, counter to applicant's allegation (page 9). Applicant merely removed Mg<sub>4</sub>FgeO<sub>6</sub>:Mn<sup>4+</sup> in the phosphor composition (claim 1). However, such constitutes a narrowing of an original range in a composition, and thus constitutes new matter.

On B: counter to applicant's allegation (page 10), that Ohara "has no applicability to lighting devices" is contradicted by their teaching of a phosphor absorbing in the UV to visible region and emitting in the visible region of wavelengths (col. 6, l. as cited). This is exactly what Srivastava et al is concerned about as well. Applicant is reminded that even in the far-too-restrictive TSM context (viz. KSR v. Teleflex, 550 U.S.-, 82 USPQ2d 1385 (2007)) to which applicant appears to be exclusively adhering to, "there are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). MPEP 2143.01:

"The prior art can be modified or combined to reject claims as prima facie obvious as long as there is a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)" MPEP 2143.02.

Regarding applicant's additional comment on "different purposes" the communality of purpose is easily found to be the rendition of a mixture of colors through absorption and emission of light as controlled by a composition of phosphors. That the origin of the light is different is irrelevant for the performance of the phosphor, given the light.

Counter to applicant's argument that "one of ordinary skill in the art of LED devices would be expected to search the technical fields to which Ohara belongs" (page 10), the absorption of UV light and emission of visible light by a phosphor mixture is pertinent to the field of phosphor-modified LED spectra, and hence should have been searched by one of ordinary skill in the art: a ray of UV light reacts in exactly the same way to such phosphor mixture regardless whether it was emitted by LED or by any other means.

Therefore, applicant's principal argument to his allegation that there is no motivation to combine Srivastava et al with Ohara et al does not persuade.

Counter to applicant's additional argument that examiner picks and chooses (page 10, third full paragraph), Ohara et al offer groups of equivalent phosphors while applicant does the same as claimed. Applicant has not shown that the combination by Ohara et al meeting his own claim limitation is inferior to any other combination as

claimed, while Ohara et al explains the phosphors to be suitable for the intended purpose.

That applicant alleges no motivation (page 10, final four lines and page 11, first eleven lines) defies the reference to In Re Leshin, from which it is clear that mere selection of known materials generally understood to be suitable to make the device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely, i.e., prima facie, obvious (in re Leshin 125 USPQ 416). Applicant's characterization on page 11, lines 2-4, is at least a misrepresentation of the content of the office action, with reference once more to the discussion of in re Leshin. Counter to applicant's allegation implicit in page 11, second paragraph, that elements were "merely found in the prior art" and then combined with the primary reference, said elements are taught suitable for the specific purpose for which they are needed in Srivastava, as explained in the office action.

Counter to applicant's allegation that a blend of phosphors is not taught by Ohara et al (page 11, final full paragraph) the case law of in re Leshin evidently ignored by applicant applies here as well in clarifying the issue: when two phosphors pertaining to the same color are equally suitable to render a color, part of one of said phosphors may be replaced by another. The list of blue phosphors in col. 6 as cited clearly represents equivalent phosphors. On the other hand, trivially, a complete phosphor mixture should indeed have at least one of each principal color, both for the purpose of obtaining white light by Srivastava et al (see abstract) and for the analogous purpose of improvements in the yellowish white by Ohara et al (see "Background", col. 1, l. 8-40). Therefore, that,

as applicant alleges, Ohara “does not disclose a blend of such phosphors” (page 11, final full paragraph) is factually incorrect. Counter to applicant’s allegation that examiner has used “impermissible hindsight”, the selection of equivalent material embodiments among suitable phosphors merely represents an obvious variation. In response to the above argument and in response to the comment on page 12 concerning the “very large list of suitable phosphors”:

As clarified in *KSR Int. Co. v. Teleflex Inc.*, 550 U.S.-, 82 USPQ2d 1385 (2007), when, for instance on the basis for the list of phosphors put forth by Ohara et al to solve the problem of yellowish white, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp and this leads to anticipated success, it is likely the product not of innovation, but of ordinary skill and common sense.

That, counter to applicant’s allegation, Ohara et al do not teach away from blends is clear from col. 4, l. 46-65, in which they advocate mixtures of phosphors. Indeed, one of their purpose appears to be the removal of yellowish white (col. 1, l. 8-40).

In light of the above, applicant’s arguments in traverse of the rejection of claims 1-7, 12, 13 and 45-65 under 35 U.S.C. 103(a) as previously provided, fail to persuade. The amended claims 1-7, 12, 13 and 45-46 are herewith being examined at the earliest possible time.

On C: Applicant’s first argument, i.e., that the combination is improper because “Schaepkens is not directed to a lighting apparatus for providing illumination” but instead “it is directed to electroluminescent displays and devices” (page 13) is incorrect and inconsistent, because electroluminescent devices are lighting apparatuses which



can be used, and are used, for providing illumination, as witnessed by the very art cited. Therefore, said first argument fails to persuade. Furthermore, even *arguendo*, while, as applicant adds, there are some differences between the two kinds of devices (LED and EL devices), the role of the phosphors in both is the same, i.e., color conversion of primary light by absorption and re-emission through the phosphor material.

Applicant is reminded that even in the far-too-restrictive TSM context (*viz.* *KSR v. Teleflex*, 550 U.S.-, 82 USPQ2d 1385 (2007)) to which applicant appears to be exclusively adhering to, "there are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). MPEP 2143.01:

"The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)" MPEP 2143.02.

The analogy applicant chooses to support his argument of non-analogous art is the juxtaposition of gas and electrical engines (page 14). However, without wanting to be led astray but also definitely wanting to avoid being held non-responsive: once again, the nature to be solved is paramount in consideration on whether art is analogous or not. As a mode of transportation one may take the train or the bus. In most civilized parts of the world this option is often one between electrical and gas engines. Hence for the purpose of getting around the two options may well be the same.

In the underlying case, two similar but different devices produce light including UV light peaking in a similar portion of the spectrum; and the purpose of the phosphor is to change the wavelength. Considerations of non-analogous art cannot be supported by merely indicating that the light generation mechanism is different. Applicant's own claims read just as well on EL devices as they do on light emitting diodes, the invention as claimed being drawn to a "lighting apparatus", despite the professional nomenclature's distinction between LED devices, i.e., light emitting diodes, and EL devices. Both devices can be semiconductor devices (see e.g., Yamazaki et al (6,147,667) for an EL semiconductor device).

For the above reasons the argument on non-analogous art is not at all persuasive. Indeed, nothing in the specification excludes the interpretation of lighting apparatus according to the normal interpretation of the term "lightning apparatus". If applicant so wishes applicant has the right to submit any affidavit applicant likes in support of his allegations on non-analogous art; however, the claim language at present includes EL devices being drawn to a "lighting apparatus".

Applicant's dismissive comments about an allegedly "egregious comment" by examiner needs clarification. Simply put: regardless the origin of the photon, it reacts to a given phosphor composition in a statistically predetermined manner, one photon at the time, except at such high intensities that the single photon picture may break down, which of course does not correspond to a relevant regime of intensity in either the invention or in the prior art of record. Therefore, the specific origin of the photon does

not seem relevant provided the spectrum is given. Applicant is kindly invited to explain the egregious nature of said comment in the next communication.

Counter to applicant's additional argument that examiner picks and chooses (page 14), Applicant has not shown that the combination by Bokor et al and Schaepkens et al meeting his own claim limitation is inferior to any other combination as claimed, while Schaepkens et al explain the phosphors to be suitable for the intended purpose.

As clarified in *KSR Int. Co. v. Teleflex Inc.*, 550 U.S.-, 82 USPQ2d 1385 (2007), when, for instance on the basis for the list of phosphors put forth by Schaepkens et al to solve the problem of converting a similar spectrum in the UV range to white light (see [0030]) and hence analogous to Bokor et al, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp and this leads to anticipated success, it is likely the product not of innovation, but of ordinary skill and common sense.

Finally, the considerable claim broadening renders reference to Wyner and Lowden unnecessary in the present rejections.

On D: Applicant states that the argument in traverse of the rejections over Srivastava in view of Schaepkens and either Lowden or Wyner is based on the same reasons as outlined above (ad C). Examiner respectfully points out that said arguments can at best be similar because the art as cited is not the same. The combination Srivastava-Schaepkens is, however, similar in that the spectra of the light to be converted are similar as pointed out in the previous office action, while due to a

Art Unit: 3663

significant broadening the references to Wyner and Lowden are no longer needed for Srivastava et al do disclose including a magnesium fluorogermanate (see page 18, section 5 disclosing the inclusion of a magnesium fluorogermanate (see especially lines 23-25)).

***Allowable Subject Matter***

5. ***Claims 27-24, 37 and 39*** are allowed. The following is a statement of reasons for the indication of allowable subject matter: strictly within the context of the invention as recited in independent claim 27, the phosphor as otherwise claimed, specifically comprising either  $\text{Sr}_{0.95}\text{Ba}_{0.025}\text{Eu}_{0.025}\text{SiO}_4$  or  $(\text{Sr}_{0.58}\text{Ca}_{0.36}\text{Eu}_{0.06})_2\text{SiO}_4$  has not been found nor is said phosphor obvious over the prior art.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3663

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPM  
September 2, 2007

Primary Patent Examiner:

  
Johannes Mondt, Ph. D. (TC 3600, Art Unit: 3663)